Subactivity: Systems Operation & Maintenance (O&M)
Line Item: Systems Operation & Maintenance

GOAL STATEMENT:

See the Overview for the National Weather Service Operations, Research, and Facilities for a discussion of our goals.

BASE DESCRIPTION:

This subactivity reflects the costs of on-going operations and maintenance of major NWS observing and processing systems.

Next Generation Weather Radar (NEXRAD): NEXRAD is the joint NWS/FAA/DOD weather radar system consisting of 158 operational radars. NEXRAD utilizes Doppler technology and hydrometeorological processing to provide significant improvements over the previous generation of weather radars for tornado and thunderstorm warnings, air safety, flash flood warnings, and water resources management. The system is modular in design, upgradeable, has long life-cycle expectancy, and provides its principal users with a wide array of automated weather information that will increase their capability to meet their respective operational requirements. In FY 2007, the NWS will continue to operate and maintain its network of 123 NEXRAD systems.

Automated Surface Observing System (ASOS): ASOS is the joint NWS/FAA/DOD automated surface observation system consisting of 887 operational systems. ASOS provides reliable, 24-hour per day, continuous surface weather observations. Implementation of ASOS into NWS field operations provides continuous weather watch and yields improved staff productivity. NWS operates and maintains 315 NWS ASOS units, and under a reimbursable funding arrangement, operates and maintains 572 FAA ASOS units. In FY 2007 the NWS will continue operations and maintenance of its 315 ASOS systems.

Advanced Weather Interactive Processing System (AWIPS)/NOAAPort: AWIPS is the cornerstone of the modernized NWS. This system is required to integrate and display all hydrometeorological data at NWS field offices. AWIPS acquires and processes data from modernized sensors and local sources, provides computational and display functions at operational sites, provides an interactive communications system to interconnect NWS operational sites, and disseminates weather and flood warnings and forecasts in a rapid, highly reliable manner. This system integrates satellite and NEXRAD Doppler weather radar data and provides to the local field forecaster capabilities to significantly improve forecasts and warnings. AWIPS provides the only display for the NEXRAD Doppler weather radar at NWS Weather Forecast Offices (WFOs) and River Forecast Centers (RFCs). The AWIPS NOAAPort satellite broadcast offers the communications capability to provide internal and external users with open access to much of NOAA's real-time environmental data.

Base activities support the objective, "Advance understanding and predict changes in the Earth's environment to meet America's economic, social, and environmental needs" under the Department of Commerce strategic goal of "Observe, protect, and manage the Earth's resources to promote environmental needs."

In FY 2007 NWS will:

- Continue operations and maintenance of 169 fielded systems under a new, performance based O&M contract;
- Continue in-service engineering to ensure the system is available 24 hours per day, 365 days per year, to support the Weather Service mission of providing climate, water, and weather forecasts and warnings to protect life and property and enhance the national economy, and to prevent system obsolescence.

NWS Telecommunications Gateway Backup: The NWS is establishing the National Weather Service Telecommunication Gateway (NWSTG) backup facility, which will provide backup operations for the primary NWSTG within 12 hours of a failure.

The NWSTG is the Nation's hub for the collection and distribution of weather data and products. The NWSTG provides national and global real-time exchange services using automated communication resources to collect and distribute a wide-variety of environmental data such as observations, analysis, and forecast products. These time-perishable products are distributed as received to ensure the fastest availability of the information. Thousands of customers worldwide use data distributed by the NWSTG, and these data affect a wide-range of economic and emergency management decisions. Without this backup capability, the NWSTG is a single point of failure, vulnerable to natural disasters, human error, computer viruses, hacker attacks, and terrorism. If the NWSTG failed, more than 90% of the in-situ weather observations necessary for numerical weather prediction models would be lost and forecast accuracy would be degraded. The NWSTG ensures that the delivery of critical meteorological data necessary for the protection of life and property and the economic well being of the Nation continues uninterrupted, providing increased operational availability and reducing risk vulnerability in the event of lost access to the NWSTG for whatever reason.

In conjunction with the NWSTG Backup, the Legacy Replacement Project will replace the legacy NWSTG core mainframe based message switching system with current server based technology, upgrade the facility support infrastructure, and establish a technology refresh program to ensure the IT keeps up with the demand and avoids another full system replacement. The Legacy Replacement will utilize the same IT software and hardware technology demonstrated and currently being implemented in the NWSTG Backup Project. In April 2004, the NWSTG Backup and Legacy Replacement were established as a joint project to more efficiently manage the two integrated efforts and achieve economies of scale where possible. In FY 2005 and FY 2006 NWS will complete and test integration of the message switching software and associated hardware and telecommunications components. Full operational capability of the Legacy Replacement is scheduled for 2nd quarter FY 2006. Full operational capability of the NWSTG backup is scheduled for 1st quarter of FY 2007.

PROPOSED LEGISLATION:
None.

SUMMARIZED FINANCIAL DATA
(Dollars in thousands)

Subactivity: Systems Operation & Maintenance (O&M)	FY 2005 ACTUALS	FY 2006 CURRENTLY AVAILABLE	FY 2007 BASE PROGRAM	FY 2007 ESTIMATE	INCREASE / DECREASE
Line Item: Systems Operation & Maintenance					
NEXRAD	38,735	39,946	40,929	43,759	2,830
ASOS	8,265	8,498	8,716	8,716	-
AWIPS	36,695	33,611	34,142	37,603	3,461
NWSTG Backup - CIP	3,042	3,009	3,012	5,512	2,500
TOTAL	86,737	85,064	86,799	95,590	8,791
FTE	191	182	182	182	-

Note: The dollars in this table represent budget authority.

PROGRAM CHANGES FOR FY 2007:

Next Generation Weather Radar NEXRAD (+0FTE and $2,830,000): NOAA requests 0 FTEs and $2,830,000 for continued operations and maintenance (O&M) of its nationwide network of NEXRAD systems. NEXRAD systems are critical for real-time observations and forecasts of severe weather events, including tornadoes, heavy precipitation, and hurricanes. This O&M funding will support NEXRAD tower and radome inspection and repair, planned system-wide lightning protection improvements, and the scheduled planned replacement of the RPG SUN processors and the local area network (LAN) switch in the NEXRAD RPG.

Advanced Weather Interactive Processing System AWIPS (+0 FTE and $3,461,000): NOAA requests 0 FTE and $3,461,000 for continued operations and maintenance for the network of 169 fielded systems. This O&M funding will support the scheduled replacement of 885 AWIPS workstations and the scheduled replacement of 223 AWIPS Communications Processors, which are no longer are covered by the initial 3-year manufactures warranty. These two sustaining engineering cyclical refresh maintenance actions are necessary to support severe weather warning operations.

The NWS Telecommunication Gateway (NWSTG) Critical Infrastructure Protection (CIP): (+0 FTE and +$2,500,000): NOAA requests an increase of $2,500,000 and 0 FTE to implement a telecommunications network solution that resolves an existing single-point-of-failure associated with the NWSTG CIP. This investment will ensure uninterrupted delivery of critical meteorological data necessary for the protection of life and property, and the economic well being of the Nation.

Statement of Need

The NWSTG is the portal for all NWS environmental data. The NWSTG has been identified as an essential government resource in Presidential Decision Directive – 67 Enduring Constitutional Government and Continuity of Government Operations. The geographically disparate backup system will be connected to the NWSTG primary and user community through a telecommunications network. The NWSTG CIP requires $3.0M for operations and maintenance (O&M) in FY 2007 including $1.12M for telecommunications costs for switching all NWSTG circuits through a switch located at the Local Exchange Carrier (LEC) central office. To eliminate all single-points-of-failure, a network was designed to bypass the LEC central office. The resulting network will cost an estimated $3.6M annually to sustain the full network connectivity at both sites.

Proposed actions

Fund the recurring network costs at an estimated cost of $3.6M to establish full user connectivity to both NWSTG sites. Major deliverables and costs are:

FY 2007 RECURRING O&M (Total Program)	
SW Licenses (o/s & db)	0.70
Telecommunications services	3.60
Support Services	0.43
Facility Rent	0.17
Technology refresh	0.21
Hardware Maintenance	0.40
Recurring O&M Subtotal	**5.51**

Benefits

The investment will enable the implementation of the NWSTG backup and therefore achieve critical infrastructure protection for an essential government resource. The investment will eliminate NWSTG vulnerability to major interruptions at the local exchange carrier facility.

Performance Goals & Measurement Data

This increase will support the objective: "Advance understanding and predict changes in the Earth's environment to meet America's economic, social, and environmental needs" under the DOC Strategic Goal of 'Observe, protect, and manage the Earth's resources to promote environmental needs.' Specifically, this increase supports NOAA's Weather and Water strategic goal and the performance measure below.

The investment will enable the NWSTG to achieve the FY 2007 performance goal to implement effective failover between the NWSTG site with full data restoration in 12 hours or less.

Performance Goal: *Weather and Water*	FY04 Baseline	FY05	FY06	FY07	FY08	FY09	FY10	FY11
NWSTG Reliability of failover to backup system ***with*** Adjustment	0%	0%	0%	99%	99%	99%	99%	99%
NWSTG Reliability of failover to backup system ***without*** Adjustment	0%	0%	0%	0%	0%	0%	0%	0%